Front Fork RR 125cc

FGR 710

Owner's Manual

ÖHLINS®
ADVANCED SUSPENSION TECHNOLOGY

Note!

The front fork is a very important part of the vehicle and will affect the stability.

Read and make sure that you understand the information in this manual and the mounting instructions before you use this product. If you have any questions regarding installation or maintenance please contact an Öhlins dealer.

Öhlins Racing AB can not be held responsible for any damage to the front fork, vehicle, other property or injury to persons, if the instructions for installing and maintenance are not followed exactly.

⚠ Warning!

This product was developed and designed exclusively for a specific vehicle model and shall only be installed on the intended vehicle model in its original condition as delivered from the vehicle manufacturer.

⚠ After installing this product, take a test ride at low speed to make sure that your vehicle has maintained its stability.

⚠ If the suspension makes an abnormal noise, or the function is irregular, or if you notice any leakage from the product, please stop the vehicle immediately and return the product to an Öhlins Service Centre.

Note!

When working on this product, always consult your Vehicle Service Manual.

This Manual shall be considered a part of the product and shall therefore accompany the product throughout its life cycle.

Safety Symbols

In this manual, mounting instructions and other technical documents, important information concerning safety is distinguished by the following symbols:

⚠

The Safety Alert Symbol means: Warning! Your safety is involved.

⚠ Warning!

The Warning Symbol means: Failure to follow warning instructions can result in severe or fatal injury to anyone working with, inspecting or using the front fork, or to bystanders.

Caution!

The Caution Symbol means: Special precautions must be taken to avoid damage to the front fork.

Note!

The Note Symbol indicates information that is important regarding procedures.

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Öhlins Front Fork FGR710

The Öhlins Front Forks use a Cartridge system for damping. This gives a damping force which depends on the speed of the piston in the cartridge system. The combination of spring and air-gap (oil level) gives a possibility to adjust the characteristics of the fork to suit different tracks and riders.

For example a soft spring in combination with a small air-gap (high oil level) gives a progressive action of the front forks.

A telescopic front fork is depending on a smooth friction free action. Make sure your front forks are serviced regularly and do not use strong solvents such as brake cleaner to clean the front forks. This will dry out the seal and steel tubes and cause friction. Regularly, put some Öhlins red grease (00146-01) on the steel tube and work in by pushing the forks up and down.

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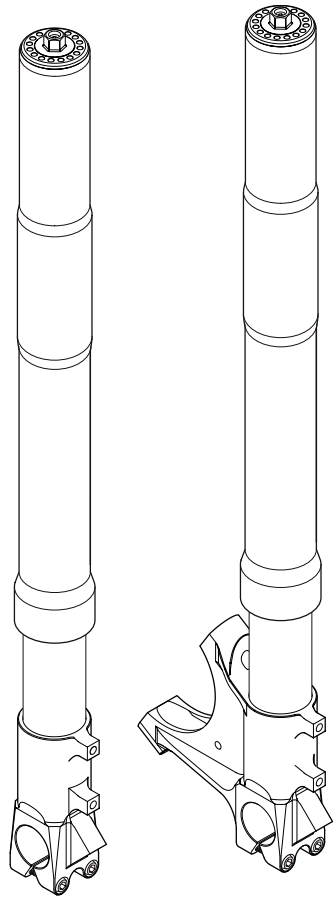


NOTE!

- Read through the whole work section and make sure that you understand all the steps in the procedure before you begin.
- Make sure that you have all the proper tools needed for the section you are about to work on, before you begin.
- Clean all parts thoroughly after disassembly
- Contact an Öhlins dealer if you have any questions regarding the front fork.

FGR 710 - External adjustments

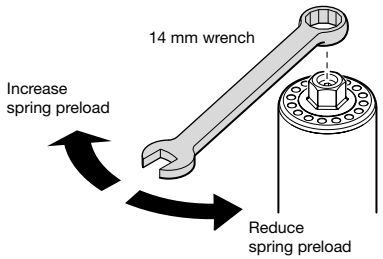
The Öhlins FGR 710 Front Fork is equipped with the following external adjusters:

- Spring preload adjuster
- Rebound damping adjuster
- Compression damping adjuster

1 Spring preload adjuster

Adjust the spring preload by turning the nut on top of the fork leg. Use a 14 mm wrench.

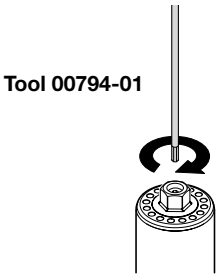
Adjustment range: 0-18 mm. On the adjustment nut, one turn will change 1 mm in spring preload. Recommended static sag is 15-25 mm.



2 Rebound adjuster

Adjust the rebound damping by turning the screw at the top of the front fork. Use tool 00794-01.

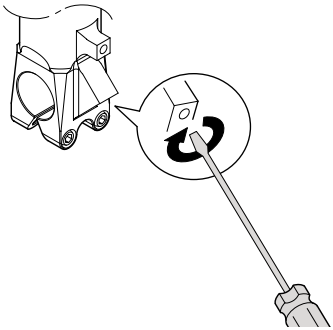
Adjustment range, from closed valve (clockwise) until maximum open valve (counter clockwise): 20 clicks. Recommended adjustment “click”, from closed position: *See specification card*.



3 Compression adjuster

Adjust the compression damping by turning the screw at the fork bottom. Use a flat screwdriver.

Adjustment range, from closed valve (clockwise) to maximum open valve (counter clockwise): 20 clicks”. Recommended adjustment “click”, from closed position: *See specification card*.



Basic Guidelines

How to set up your Öhlins front forks

The front forks are just one part of your motorcycle and to get it to work properly, you have to adjust the front and rear suspension together.

1

Put the motorcycle on a workstand and install the Öhlins front fork.

NOTE!

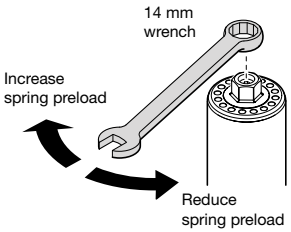
The lower triple clamp must not be tightened to more than 12-15 Nm. This is also important for the steering damper bracket, when located around the upper front leg. Too high torque may deform the front fork leg.

Guidelines

Setting the Spring preload

2

The spring preload is very important since it affects the height of the motorcycle and the fork angle. Consequently, handling characteristics can be changed, even negatively.



Procedure

We recommend you to have an assistant for this procedure.

1. Put the motorcycle on a stand.
2. Make sure that the shock absorber is fully extended.
3. Measure the distance from the lower edge of the rear mud guard or from a point marked by a piece of tape, immediately above the rear wheel axle, to the wheel axle. (R1)
4. Make a similar measurement on the front axle, for example, from the bottom of the upper fork crown to the front wheel axle. Make sure that the front fork is fully extended. (F1)
5. Take the same measurements with the rider and equipment on the motorcycle. It is important that the rider has a correct riding posture, so that the weight is balanced on the front and rear wheel in the same way as when riding (R3, F3).

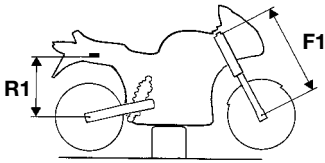
4

The measurements should not differ from the following:

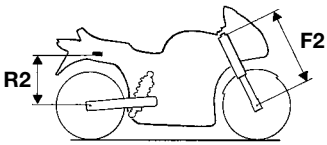
With rider:		
	Rear:	30±5 mm (R1-R3)
	Front:	30±5 mm (F1-F3)
Without rider:		
	Rear:	Just top out 0 mm (R1-R2)
	Front:	15-25 mm (F1-F2)

NOTE!

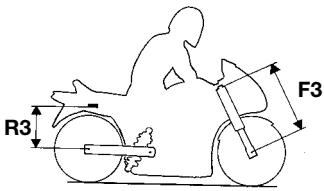
An RR125 cannot afford to loose the momentum that the sag would give in a straight line (loss of top speed).



Bike on a stand.



Bike on the ground.



Bike with rider on.

Recommended tools and oils

1. Vice

2. Soft jaws **00727-02** (one pair)

3. Hexagon screwdriver **00794-01**

4. Wrench: 14 mm, 17 mm, 19 mm and 24 mm.

5. Wire with hook

6. Seal head tool **01797-08**

7. Heat gun

8. Brass wire brush

9. Sleeve pin **00797-01**

10. Inner fork leg tool **00786-02**

11. Attachment bar **01757-01**

12. Pull-up spring tool **01765-03**

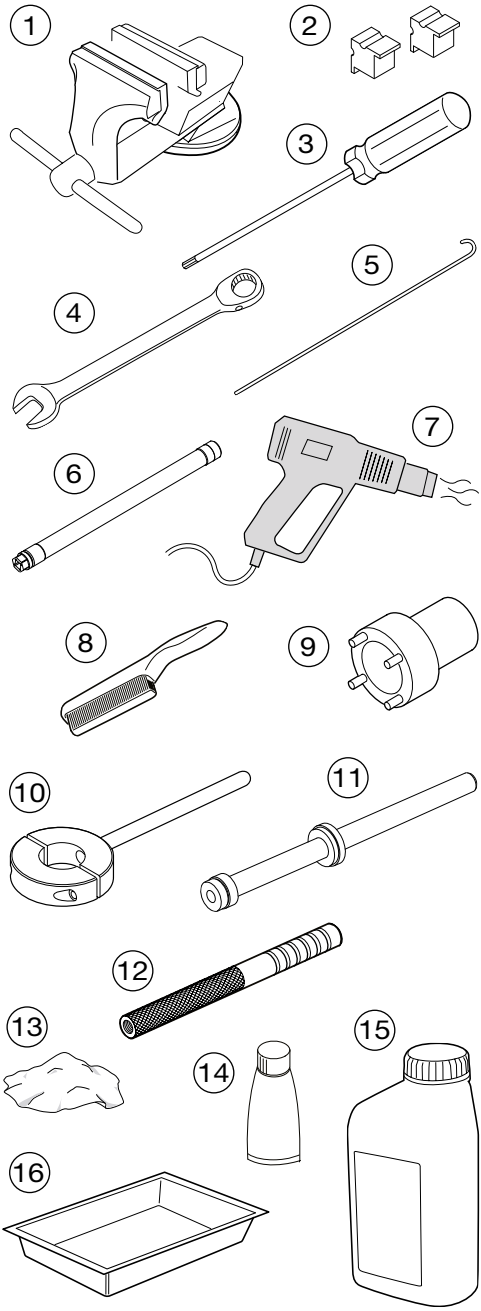
13. Rag

14. Öhlins red grease **00146-01**

15. Öhlins front fork oil **01311-01**

16. Waste oil container

Loctite 2701



1.1

Release the spring preload completely by turning the adjustment nut counter clockwise as far as possible. Use a 14 mm wrench or socket.

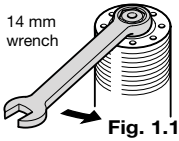


Fig. 1.1

1.2

Loosen the screws that hold the fork legs in the upper triple clamps.

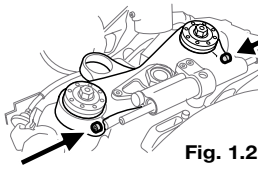


Fig. 1.2

1.3

Loosen the top nut assembly from the fork leg. Use tool 00797-01.

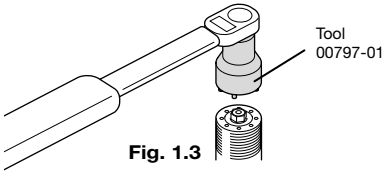


Fig. 1.3

1.4

Remove the top nut assembly from the piston shaft. Use a 14 mm wrench on the top nut and a 19 mm on the shaft.

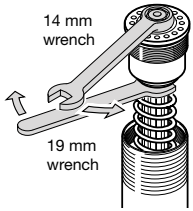


Fig. 1.4

1.5

Remove the spring support and the spring. Use a wire with a hook and carefully pull out the preload tube.

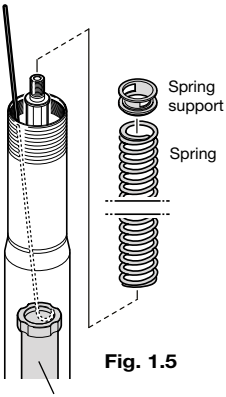


Fig. 1.5

1.6

Check the oil level according to Chapter **Oil level adjustment**.

NOTE!

Use Öhlins Front fork oil 01311-01 only.

1.7

Reinstall the preload tube, the *new* spring and the spring support.

1.8

Reinstall the top nut assembly to the piston shaft with tightening torque 20 Nm.

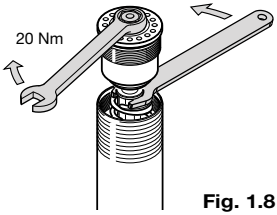


Fig. 1.8

1.9

Reinstall the top nut into the outer fork leg, with the front wheel off the ground (use tool 00797-01) and tighten with torque 10 Nm. Tighten the upper triple clamps and adjust the preload according to Chapter **External adjustments.**

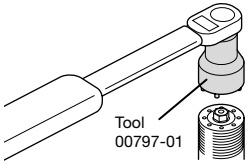


Fig. 1.9

Work section - 2. Dissasemble the front fork

NOTE!

This worksection can not be done while the forks still are installed on the motorcycle.

2.1

Put the fork legs in upright position for about 5 minutes to allow the oil to settle.

2.2

Fasten the fork leg in a vice with soft jaws.

2.3

Release the spring preload completely by turning the adjustment nut counter clockwise as far as possible. Use a 14 mm wrench or a socket.

NOTE!

Do not use the preload adjuster to tighten or loosen the top nut assembly.

2.4

Loosen the top nut assembly. Use tool 00797-01.

2.5

Remove the top nut assembly from the piston shaft. Use a 14 mm wrench to the top nut and a 19 mm wrench to the shaft.

2.6

Remove the spring support and the spring. Use a wire with a hook and carefully pull up the preload tube.

2.7

Use tool 01797-08 together with an 24mm wrench to unscrew the piston rod unit from the fork leg.

2.8

Use tool 01765-03 to remove the piston rod unit.

2.9

Drain all oil from the fork leg. Make sure that washer 04729-02 falls out.

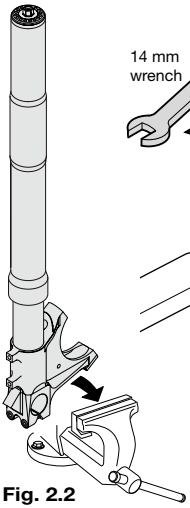


Fig. 2.2

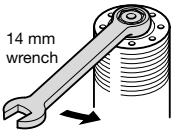


Fig. 2.3

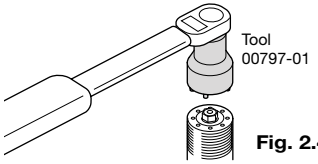


Fig. 2.4

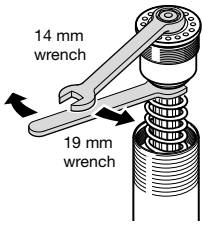


Fig. 2.5

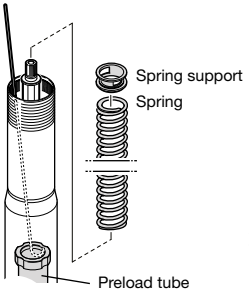


Fig. 2.6

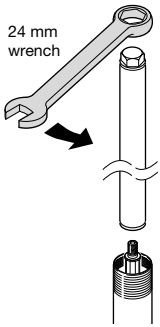


Fig. 2.7

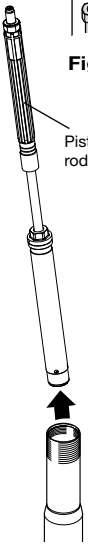


Fig. 2.8

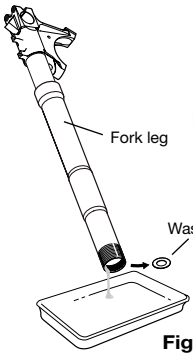


Fig. 2.9

NOTE!

This worksection can not be done while the forks still are installed on the motorcycle.

Remove the top nut and piston rod unit according to Chapter **2. Disassemble the Front Fork.** *Then, continue below.*

3.1

Remove the outer fork leg, clean the seal and check the condition. If the seal is in good condition apply some red grease (00146-01) to the seal before reassembling the fork.
A damaged seal must be replaced!

3.2

Remove the circlip, the seal and finally the washer.

3.3

Apply a thin layer of Öhlins red grease (00146-01) to the washer and to the sealing surfaces of the fork seal. Install the washer and the seal into the outer fork leg. Install the circlip into the groove.

NOTE!

It is important to use the correct grease in order to achieve optimum fork function.

3.4

Apply some Öhlins fork oil (01311-01) on the inner fork legs outer surface. Slide on the outer fork legs carefully on to the inner fork legs (completely down).

⚠ WARNING!

Be careful - Do not damage the fork seal!

3.5

Reassemble the fork legs according to Chapter **5. Assemble the Front fork.**

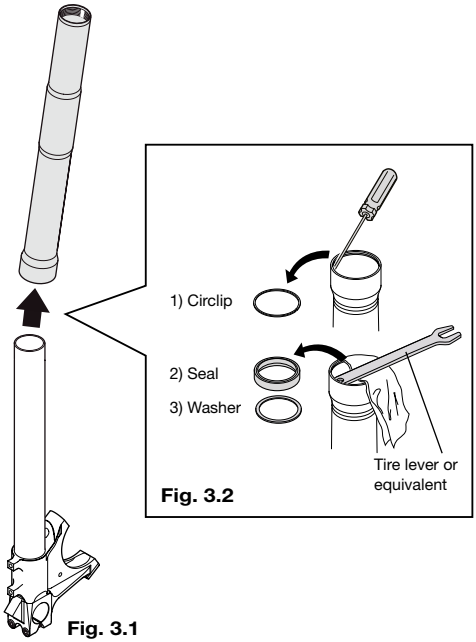


Fig. 3.2

Fig. 3.1

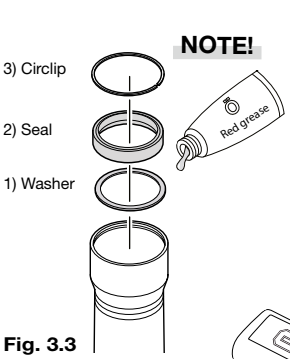


Fig. 3.3

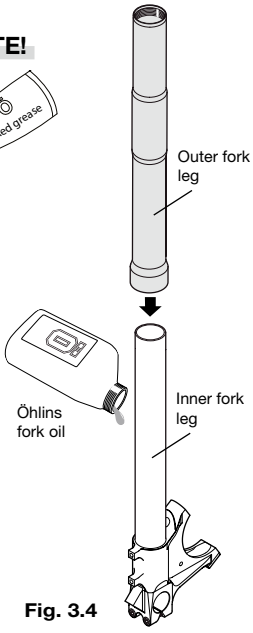


Fig. 3.4

Work section - 4. Replace the inner fork legs

NOTE!

This worksection can not be done while the forks still are installed on the motorcycle.

Remove the top nut and piston rod unit according to Chapter **2. Disassemble the Front Fork.** *Then, continue below.*

4.1

Remove the outer fork leg.

4.2

Use a heat gun to warm up the fork bottom. Use tool 00786-02 to unscrew and remove the inner fork leg. Clean the threads thoroughly from Loctite.

4.3

Install the new inner fork leg using tool 00786-02. Use Loctite 2701 on the threads. Tighten with torque to 160 Nm.

4.4

Apply some Öhlins fork oil (01311-01) on the inner fork legs outer surface. Slide on the outer fork legs on to the inner fork legs (completely down).

⚠ WARNING!

Be careful - Do not damage the fork seal!

4.5

Reassemble the fork legs according to Chapter **5. Assemble the Front Fork.**

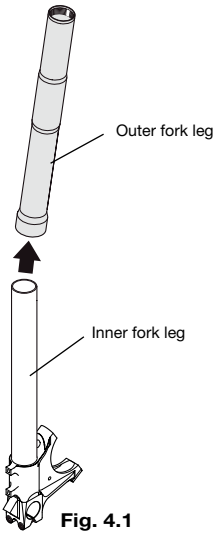


Fig. 4.1

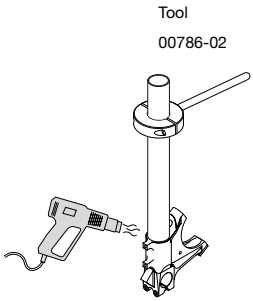


Fig. 4.2

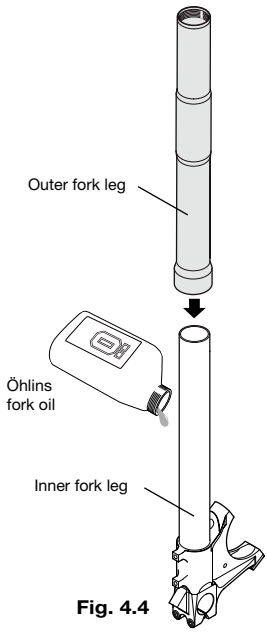


Fig. 4.4

5.1

Assemble the compression valve assembly to the cylinder tube. Smear some red grease on washer 04729-02 and stick it to the bottom of the base valve.

5.2

Assemble the piston rod unit into the fork leg and tighten with 20Nm. Use tool 01797-08.

5.3

Pour Öhlins Front Fork Oil 01311-01 into the inner fork leg, approximately 20-25 mm above the cylinder tube.

5.4

Pull the rod up and down and make sure that there is no air left. Use tool 01765-03.

5.5

Push tool 01765-03 to a stop and check the oil level according to Chapter **Oil level adjustment**.

NOTE!

Use Öhlins Front Fork oil 01311-01 only!

5.6

Reinstall the preload tube. Install the spring and the spring support.

5.7

Reinstall the top nut assembly to the piston shaft. Tightening torque 20 Nm.

5.8

Reinstall the top nut into the outer fork leg. Use tool 00797-01 and tighten with torque 10 Nm. Adjust the spring preload, compression and rebound damping.

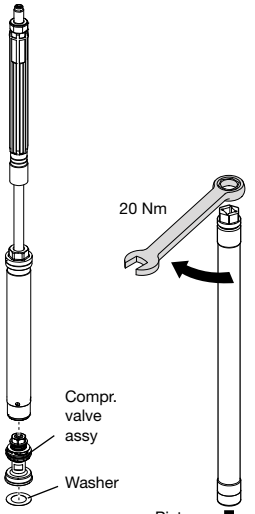


Fig. 5.1

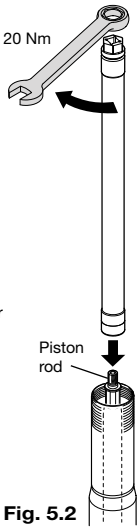


Fig. 5.2

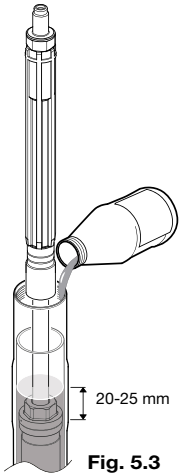


Fig. 5.3

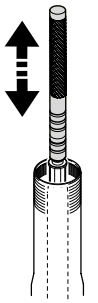


Fig. 5.5

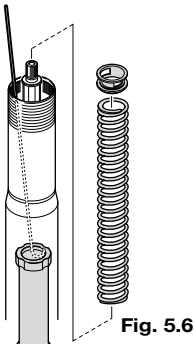


Fig. 5.6

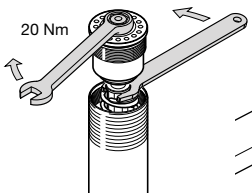


Fig. 5.7

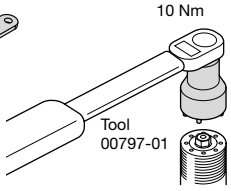


Fig. 5.8

Oil level adjustment

Compared with conventional type of front forks, the upside down front forks are very sensitive to variations in oil level. Therefore, adjust the oil level with special care.

A change in the fork oil level will not affect the spring force at the beginning of the fork travel, but will have a great effect at the end of the travel.

When the oil level is raised:

The air spring in the later half stage of travel is stronger, and make the front forks more progressive.

When the oil level is lowered:

The air spring of the travel is reduced, and thus the front fork less progressive. The oil level works most efficient at the end of the fork travel. Air spring characteristics shown, is a general card description to understand the difference when the oil level is changed.

NOTE!

Adjust the oil level according to the figure with the fork leg fully compressed (with springs and preload tube taken out). For the correct oil level - see specification card.

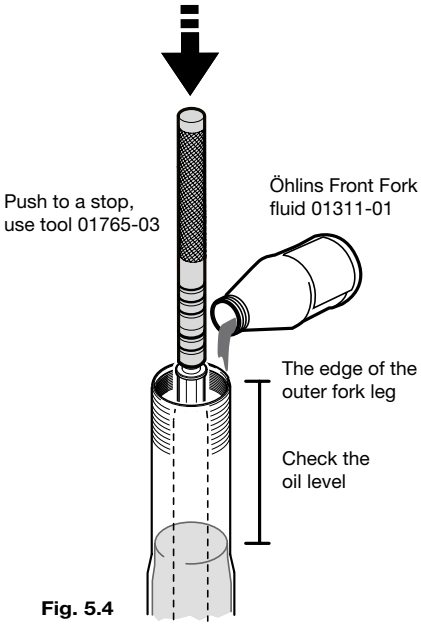


Fig. 5.4

Front Fork length	**615 mm**
Stroke	**100 mm**
Free spring length	**260 mm**

Recommended settings

Compression: 10 clicks

Rebound: 12 clicks

Spring preload: 4 turns from fully compressed position

Preload range: 0-15 mm (0-15 turns)

Spring rate

21610-55 5.5 N/mm

Optional springs available

21610-50 5.0 N/mm
21610-60 6.0 N/mm
21610-65 6.5 N/mm
21610-70 7.0 N/mm

Oil capacity

See specification card.
Use Öhlins high performance front fork oil no. 4 (01311-01) only.

Torque

Lower triple clamp bolt 12-15 Nm
Upper triple clamp bolt 18-22 Nm

Grease

Öhlins Front Fork
Red Grease 00146-01

Service intervals

This product is designed for racing use only.

Recommended service every 10 hours.

Disposal

Discarded products should be handed over to an authorized Öhlins Service Centre for proper disposal.

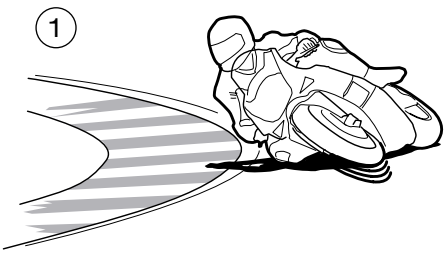
Troubleshooting

Below you will find a few examples of how to adjust for the most common road holding problems in Road Racing driving.

1

The front wheel “chatters” entering a corner, the problem goes away, as soon as you let the brakes off, or when you get on the power.

- This is caused by the fact that the fork is working too low in the travel and reaches the progressive, hard part at the end of the travel.
- Put on more preload.
- Change to a harder spring.
- If a lot of stroke remains after riding, drop the oil level. See oil level chart.
- Make sure the front forks have no friction.
- Rear ride height is to high, too much rear spring preload.
- Lower the rear end by taking off preload from rear shock spring.



2

The front wheel is jumping during the last part of braking.

- If a lot of stroke remains, the oil level is too high. Lower the oil level.
- If the fork is bottoming, put in harder springs and keep the oil level.

3

The front end feels unpredictable and un-safe in the middle of the corner (between braking and getting on power).

- Not enough rebound damping. Put on more damping.
- Too much rebound damping. If it at the same time feels harsh, take off some rebound damping.
- Too much compression damping. Also gives a harsh feeling. Take off some compression damping.

4

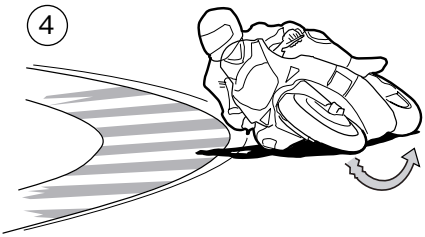
The front end loses grip coming out of a corner.

- Not enough rebound damping. Put on some more rebound damping.
- Too much preload. Take off some preload.
- Rear end is too soft. Put on a harder rear spring.
- Front end is too high. Lower the front end by pulling the fork legs through the triple clamps.

As mentioned in the beginning, the whole bike setup affects the front forks. Try to understand the feelings and work step by step.

NOTE!

We advise to change only one thing at a time and do everything step by step.



Pos	Part No.	Pcs	Description	Remarks
1-1	-	-	**Top nut assembly**	*See page 16*
1-2	03316-01	2	Spring support	
1-3	21610-55 21610-50 21610-60 21610-65 21610-70	2 2 2 2 2	Spring Option spring Option spring Option spring Option spring	*4.0/163/5.5* *4.0/158/5.0* *4.2/154/6.0* *4.2/157/6.5* *4.4/148/7.0*
1-4	21611-01	2	Guide ring	
1-5	01460-50	2	Preload tube	
1-6	01550-03	2	Fork leg outer	
1-7	01683-03	2	Bushing	
1-8	01684-03	2	Bushing	
1-9	02463-01	2	Washer	
1-10	02461-01	2	Seal MX	
1-11	02465-01	2	Circlip	
1-12	21606-01	2	Cylinder tube	
1-13	02469-03	2	Fork leg inner	
1-14	01902-17	1	Fork bottom LH	*Left*
1-15	01902-18	1	Fork bottom RH	*Right*
1-16	01046-02	4	Screw	
1-17	01669-01	2	Sleeve	
1-18	01473-02	2	Circlip	
1-19	00338-53	2	O-ring	
1-20	01242-03	2	Adjustment needle	
1-21	01474-01	2	Spring	
1-22	00884-02	4	Ball	

Note! The number of pieces is valid for 1 pair of Front fork legs

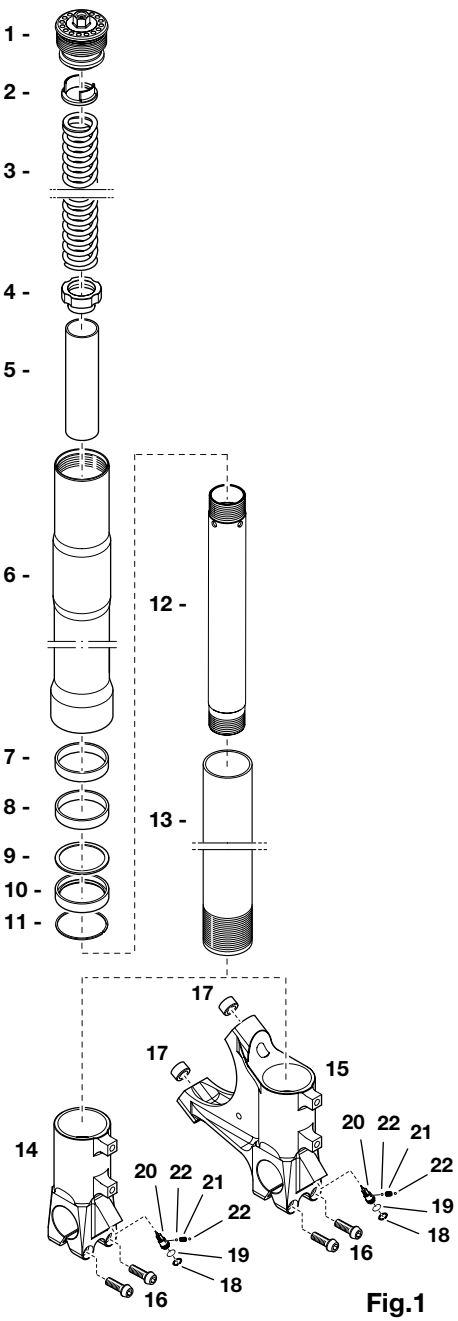


Fig.1

Spare parts list

Pos	Part No.	Pcs	Description	Remarks
2-1	01473-01	2	Circlip	
2-2	00577-01	2	O-ring	
2-3	01467-02	2	Adjustment screw	
2-4	00884-04	4	Ball	
2-5	01474-01	2	Spring	
2-6	03312-01	2	Adjuster	
2-7	03309-01	4	Shim	t=0,1mm
2-8	00338-72	2	O-ring	
2-9	03318-09	2	Adjustment housing	
2-10	00338-92	2	O-ring	
2-11	03317-01	6	Spring	
2-12	03309-02	2	Shim	t=0,38mm
2-13	03313-01	2	Nut	
2-14	03315-01	2	Preload socket	
2-15	00382-06	2	Screw	
2-16	00338-56	2	O-ring	

Note! The number of pieces is valid for 1 pair of Front fork legs

Top nut assembly

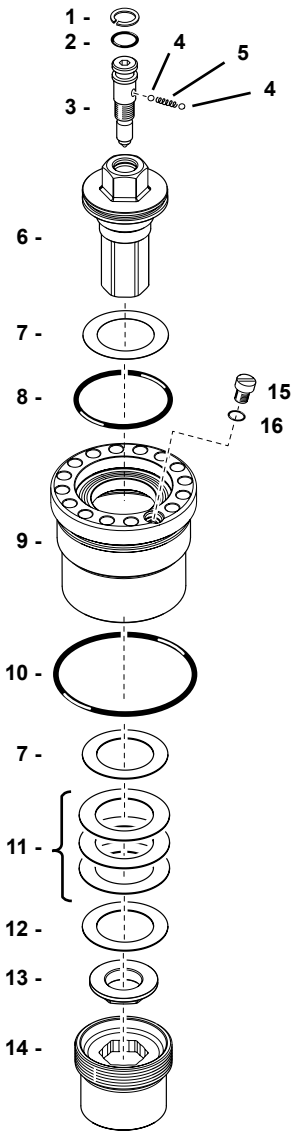


Fig.2

Pos	Part No.	Pcs	Description	Remarks
3-1	02366-16	2	Adjustment rod	
3-2	03314-12	2	Shaft extension	
3-3	00338-76	2	O-ring	
3-4	02302-10	2	Spring guide	
3-5	01582-12	4	Spacer	
3-6	01582-10	2	Spacer	
3-7	01580-01	2	Bump rubber	
3-8	21607-01	2	Tube top cap	
3-9	00110-01	2	Bushing	
3-10	00438-28	2	O-ring	
3-11	01582-12	4	Spacer	
3-12	02367-09	2	Shaft	
3-13	00438-31	2	O-ring	
3-14	01698-10	2	Rebound needle	
3-15	02322-01	2	Spring	
3-16	01654-11	2	Piston holder	
3-17	-	-	Shim stack	*See spec. card*
3-18	02061-03	2	Piston, rebound	
3-19	01447-02	2	Piston ring	
3-20	-	-	Shim stack	*See spec. card*
3-21	-	-	Washer	*See spec. card*
3-22	00153-01	2	Washer	
3-23	01675-01	2	Nut	

Note! The number of pieces is valid for 1 pair of Front fork legs

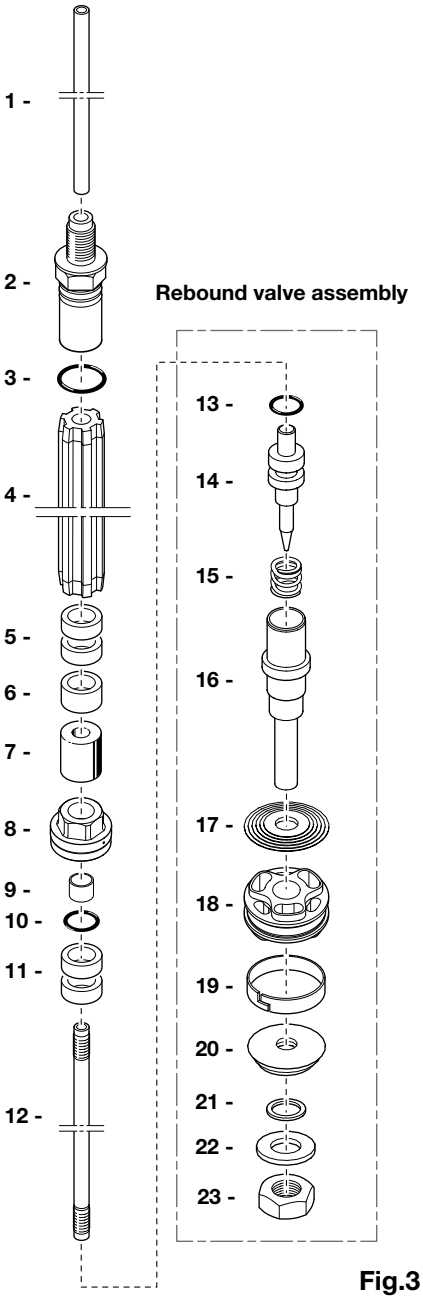


Fig.3

Spare parts list

Pos	Part No.	Pcs	Description	Remarks
4-1	00520-26	2	Shim	
4-2	21609-01	2	Base valve	
4-3	-	-	Washer	*See spec. card*
4-4	-	-	Shim stack	*See spec. card*
4-5	01670-04	2	Piston	
4-6	00438-02	2	O-ring	
4-7	01669-01	2	Sleeve	
4-8	00530-22	2	Shim	
4-9	01671-02	2	Spring	
4-10	01672-01	2	Spring collar	
4-11	00120-01	2	Washer	
4-12	01675-01	2	Nut	

Note! The number of pieces is valid for 1 pair of Front fork legs

Compression valve assembly

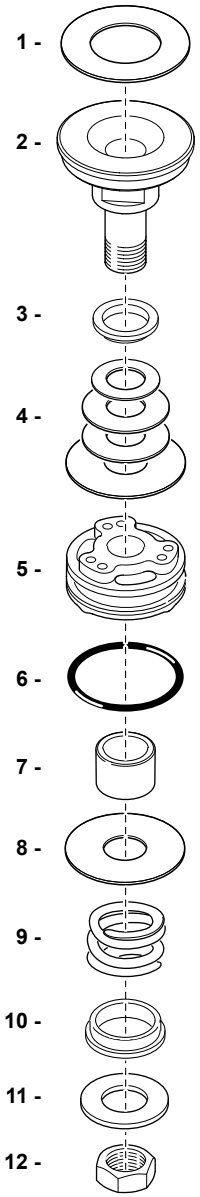


Fig.4

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